

# Journal of the Royal Society of Arts

NO. 4938

FRIDAY, 12TH NOVEMBER, 1954

VOL CII

## FORTHCOMING MEETINGS

WEDNESDAY, 17TH NOVEMBER, at 2.30 p.m. E. FRANKLAND ARMSTRONG MEMORIAL LECTURE. '*Science and Food Production*', by Leslie H. Lampitt, D.Sc., F.R.I.C., a Director and Chief Chemist of Messrs. J. Lyons & Co., Ltd. Sir Charles Dodds, M.V.O., M.D., F.R.C.P., F.R.S., Courtauld Professor of Biochemistry, University of London at Middlesex Hospital Medical School, will preside. (The lecture will be illustrated with lantern slides.)

WEDNESDAY, 24TH NOVEMBER, at 2.30 p.m. '*A Scheme for Roof-top Roadways*', by Wing Commander T. R. Cave-Browne-Cave, C.B.E., F.R.Ae.S., M.I.Mech.E., and '*A System of Underground Roadways for London*', by C. E. H. Watson, B.Sc.(N.Z.), M.I.C.E., A.M.I.Mech.E. These two papers were submitted as entries for the Society's Bicentenary Competition, '*Life in the Year A.D. 2000*', and gained the first two prizes which were awarded. Sir Alfred Bossom, Bart., F.R.I.B.A., M.P., a Treasurer of the Society, will preside.

WEDNESDAY, 1ST DECEMBER, at 2.30 p.m. LLEWELYN B. ATKINSON MEMORIAL LECTURE. '*The Insulation of Submarine Telephone Cable*', by J. N. Dean, B.Sc., A.R.I.C., F.I.R.I., Managing Director, Submarine Cables, Ltd. P. C. Allen, of Imperial Chemical Industries, Ltd., will preside.

THURSDAY, 2ND DECEMBER, at 5.15 p.m. COMMONWEALTH SECTION. '*The Development of Broadcasting in British Africa*', by J. Grenfell Williams, Head of Colonial Service, British Broadcasting Corporation. W. Harold Ingrams, C.M.G., O.B.E., late Adviser on Overseas Information, Colonial Office, will preside. (The paper will be illustrated with recordings and a film. Tea will be served from 4.30 p.m.)

FRIDAY, 3RD DECEMBER, at 7.30 p.m. FILM EVENING (See special notice below).

WEDNESDAY, 8TH DECEMBER, at 2.30 p.m. '*The Buying and Selling of Antiques*', by Cecil F. Turner, C.B.E. Sir Ernest Goodale, C.B.E., M.C., a Vice-President of the Society, will preside.

*Fellows are entitled to attend any of the above meetings without tickets and may also bring two guests. When they cannot accompany their guests, Fellows may give them special passes, books of which can be obtained on application to the Secretary.*

**FILM EVENING**

The first Film Evening of the Session will be held on Friday, 3rd December, at 7.30 p.m., and the programme will consist of the three following films:

*The Story of Fine China*  
*They Planted a Stone*  
*Forest Heritage*

*The Story of Fine China* (40 minutes) is a Kodachrome film produced by Kinecraft Films, Ltd., for Messrs. W. T. Copeland & Sons, Ltd. Its object is to show the application of craftsmanship to the production of high grade china, and the development of Spode china since the eighteenth century is shown in particularly beautiful colour photography. (Kind permission for this special showing of the film has been granted by the British Lion Film Corporation.)

*They Planted a Stone* (26 minutes) was produced for the Central Office of Information by World Wide Pictures, Ltd., and by tracing the changes which took place in a particular village the film illustrates how new life has been brought to the immense desert of the Sudan by the harnessing of the waters of the Nile and the establishment of the Gezira Cotton Scheme.

*Forest Heritage* (23 minutes) was produced by the Esso Film Unit and deals with the natural background, people and long-standing traditions of the New Forest. It shows something of the wild life, forest lore, farming, timber industry and historic towns, villages and great houses of the area.

Fellows are entitled to bring two guests without tickets, and light refreshments will be served in the Library afterwards at a charge of one shilling a head.

**BICENTENARY RECEPTION**

The demand for tickets for the Bicentenary reception, which is to take place at St. James's Palace on the evening of Wednesday, 15th December, has substantially exceeded even the extensive accommodation provided by the State Apartments, so that, as forecast in previous *Journal* announcements, it has unfortunately proved necessary to hold a ballot. All who applied by the advertised date, 1st November, have already been notified of their success or otherwise in this ballot and it is regretted that no further applications for tickets can now be accepted.

**SPECIAL ACTIVITIES COMMITTEE**

In keeping with the stimulus to progressive activity which has resulted from the Society's recent Bicentenary celebrations the Council have appointed a new standing committee, to be known as the Special Activities Committee, which is to consider and advise the Council upon proposals for useful new

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action by the Society in matters of public interest. The Chairman of the Committee is Mr. A. R. N. Roberts, who served as Hon. Secretary of the War Memorials Advisory Council, a notable 'special activity' of the Society in the recent past.

The Special Activities Committee is anxious to be a means of fostering closer co-operation between the Council and Fellows of the Society, and would be very glad to receive and consider any proposals which Fellows may have for useful and appropriate action by the Society. The next meeting of the Committee will be held early in December and Fellows are therefore invited to forward any such proposals to the Secretary by the end of the present month.

*JOURNAL INDEXES AND BINDING CASES*

The *Journal* index and title page for Volume cii, which ends with this issue, are now ready, and will be sent free of charge to Fellows who apply to the Secretary.

Arrangements have been made with Messrs. P. G. Chapman & Co., Ltd., Kent House Lane, Beckenham, Kent, for them to supply binding cases for the *Journal*, and Fellows requiring these should apply to the firm *direct*. The cases will cost 4s. 6d. post free, and will be accompanied by a *Journal* index and title page.

Messrs. Chapman, who undertake bookbinding for the Society, would also be pleased to bind volumes of the *Journal* for Fellows, and to give a quotation on request.

*THE SOCIETY'S CHRISTMAS CARD*

The great demand for the Society's Christmas card has now exhausted the 17,500 copies which were printed this year. As the demand continues and there are still some weeks to Christmas, it has been decided to order a small reprint, which will take about ten days to complete.

Fellows who have not yet ordered their cards, therefore, and who intend to do so, should fill up the form at the back of this *Journal* and post it to the Secretary without delay. A specimen card can be sent for approval.

*HISTORY OF THE ROYAL SOCIETY OF ARTS*

Fellows may like the suggestion that the new *History* of the Society would make a suitable Christmas present in this Bicentenary year in which it has been published. They will remember that the *History*, which is lavishly illustrated, was written by Derek Hudson and Kenneth W. Luckhurst, the Secretary of the Society, and contains a foreword by H.R.H. The President and an introduction by the Earl of Radnor. It is available to Fellows at the reduced price of twenty-five shillings.

## REPORT ON THE SOCIETY'S EXAMINATIONS FOR THE SESSION 1953-1954\*

### INTRODUCTION

The number of 'subject entries' in the Society's examinations in the year under review totalled 155,341, which is a record in the history of the Examinations Department—and a fitting event in the Society's Bicentenary Year. The number of individual candidates which these entries represent certainly exceeds 100,000 and probably lies between 110,000 and 120,000. The number is so large that one immediately asks oneself who the candidates are and why they choose to submit themselves to the ordeal of examination.

The first of these questions is not difficult to answer. The candidates fall naturally into two groups: a relatively small group of full-time scholars, and a very large group composed mainly of part-time, that is to say evening, students.

The former group includes boys and girls of from 16 to 17 years of age who are just completing a course of full-time study in secondary commercial schools or in schools of similar standing and who, or at least whose parents and headmasters, realize the value to a young entrant into commercial life of a nationally accepted certificate, covering a number of subjects of general and commercial education, such as the Society's School and Senior School Commercial Certificates.

The great body of candidates in the second group are young people, between the ages of sixteen and the early twenties, who are in full employment and who, having had the energy—and the courage—after the day's work to attend evening classes for two or three sessions in technical colleges, colleges of commerce, or other institutions of further education, eventually decide to measure their progress—or try their luck—by means of an examination. And they do all this voluntarily; as fee-paying students they are not, in the matter of examinations, subject to the behest of headmaster or principal of a college.

The Society's examinations stand high in general esteem, but they are not designed—the Teachers' Certificates in Shorthand and Typewriting are perhaps exceptions to this rule—to confer professional status upon successful candidates. Yet, in certain subjects, particularly in shorthand and typewriting, an R.S.A. certificate is recognized and accepted and, indeed, often demanded, in the world of business and public administration as the established criterion of proficiency. It is doubtless true therefore that the majority of examinees in these subjects are influenced by the desire for advancement in their daily work. But it seems to be equally true that there remain many examinees who are free of such 'worldly' incentives and draw their keenness and enthusiasm from other sources.

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\*A fuller report, containing the individual reports of the examiners in the various subjects, will be published as a separate pamphlet by the Examinations Department later this year, and a copy may be obtained by Fellows on application to the Secretary.

A general survey of the examiners' reports on the work of the candidates gives one the impression that, while the best candidates—and how few they would appear to be!—submit well-written, intelligent, and knowledgeable scripts, the great majority are, alas, a very poor lot indeed: they do not understand fundamental principles; they cannot spell; they are unable to express themselves in simple English; they lack precision, lack a good general education, lack the virtues of orderly presentation and systematic arrangement; they pad; their handwriting is bad; they do not even read the questions set; they do not realize that the merit of an answer is *not* measured by its bulk; they are poor craftsmen; and so on—all of which comments, in one form or another, appear and re-appear, year after year, in the examiners' individual reports. This is of course as it should be. The examiner is the expert in his subject; he is concerned to establish and maintain standards of attainment, to reward good work and to condemn the bad, to emphasize and reiterate those fundamentals on which alone true knowledge can be built up. But let us not fail to observe that, having vented his wrath on the candidates, the examiner then proceeds, in a calm appraisal of their true merits, to grant a 'pass' to considerably more than half of them and a first-class certificate to not a few.

The criticism that is sometimes directed against the organization of further education in this country, that it is largely a system under which tired students are instructed by tired teachers, itself provides eloquent commendation of the zealous enthusiasm of those students whose work is surveyed in this Report—voluntary students who choose an examination as a target to aim at and as a



*This candidate, Ronald Tench, aged 15, of the Lord Mayor Treloar Orthopaedic Hospital, Alton, Hants, was successful at the examinations in Shorthand at 60 words per minute, and in Typewriting, Stage I (Elementary), at the Whitsun Series, 1954.*

measuring rod of their progress. The essential character of this enthusiasm may be illustrated by reference to two candidates in the Society's recent examinations. Both, although very heavily handicapped by physical infirmity, entered for examination and succeeded, without concessions of any kind, in satisfying the examiners concerned. The first of these was a young 'spastic' candidate who sat for the Elementary and Intermediate examinations in book-keeping. Able to write only with the greatest difficulty—and even then scarcely legibly—he nevertheless displayed a sound knowledge of the subject and reached the standard of a pass-with-credit at the Elementary Stage and of a second-class pass at the Intermediate Stage. In doing so he was, of course, aware of his complete inability to work as a book-keeper in a business office. The second case is that of a young student suffering from tuberculosis of the spine, who 'sat' for examinations in shorthand and typewriting, with a portable typewriter resting on his stomach and a mirror suspended over his bed, on which he lay rigidly horizontal. The photograph on the preceding page shows him at work. He, too, passed both examinations without receiving concessions. These are, of course, extreme illustrations of the buoyant enthusiasm and hopeful aspiration of young students but, by the very violence of their character, they may serve to make the point.

J. P. IVENS

### ENTRIES AND PAPERS WORKED

The following table gives a detailed comparison of the subject entries for the various examinations conducted by the Society in Sessions 1953-54 and 1952-53, and also of the papers worked:

EXAMINATION	Entries		Papers Worked	
	1953-1954	1952-1953	1953-1954	1952-1953
Ordinary (Single-Subject) Series	127,107	118,165	120,938	111,642
School and Senior School Commercial Certificates	9,604	8,934	9,444	8,679
Oral Tests	3,022	2,790	2,850	2,568
L.C.C. and Home Counties Grouped Course	11,793	8,571	10,477	7,940
Transport—Scheme A	20	77	20	70
" B	1,419	1,666	1,310	1,500
Teacher's Certificate in Shorthand	648	615	624	602
" Typewriting	317	220	306	214
Railway Executive (Preliminary examination of candidates under the British Railways Traffic Apprenticeship Schemes)	999	1,263	933	1,170
British European Airways (Special proficiency tests in Shorthand and Typewriting)	199	221	199	221
Royal Air Force Administrative Apprentices (Scheme of endorsement of certificates awarded by the Air Ministry)	153	142	153	142
Totals	155,341	142,670	147,254	134,754

## GENERAL REMARKS

## ENTRIES

The overall increase in entries of 12,671 was very satisfactory indeed, and demonstrates the standard and reputation of the Society's examinations. As mentioned in the opening paragraph of the introduction to this report, the total of entries is a record. The previous record was in the Session 1948-49 when there were 154,100 entries, including 11,000 for the Civil Service Proficiency Tests in Shorthand and Typewriting, and nearly 40,000 for special establishment examinations for temporary civil servants in various government departments.

At the Ordinary (Single-Subject) Examinations the increase of nearly 9,000 entries was mainly due to the ever-growing demand for examinations in Shorthand and Typewriting, and to the increasing popularity of those in English Language instituted in 1953. In Book-keeping, however, there were fewer candidates in the Intermediate and Elementary Stages, which may perhaps be attributable to the considerable changes made recently in the syllabuses. For the School and Senior School Commercial Certificates and the Grouped Course Examinations the numbers were satisfactory, but it was difficult to account for the decrease in entries for Scheme 'B' of the transport examinations; as this was the last year of Scheme 'A', it was only to be expected that for this there would be few candidates forthcoming.

The Summer Series of examinations were held at a number of centres in Nigeria under the control of officials appointed by the Inspector-General of Education (Examinations Branch), Lagos. There were nearly 3,000 entries for the Ordinary (Single-Subject) Examinations, and 120 and 191 candidates, respectively, for the School and Senior School Commercial Certificate Examinations; each of these latter candidates took from seven to nine subjects. In future, the examinations will be under the control of the West African Examinations Council, which has been appointed by the Colonial Office to take over the conduct of all external examinations in West Africa and, where possible, to organize its own.

The examinations in connection with the selection of Traffic Apprentices from the railway staff of the British Transport Commission were held this year in May, when there were 333 candidates, each taking (a) English, (b) Geography/General Knowledge and (c) a special paper dealing with railway knowledge.

The R.A.F. Administrative Apprentices Training School has now been transferred to Hereford, but the arrangements continue for the endorsement by the Society of certificates awarded by the Air Ministry. Examinations in Arithmetic and English were held in July and November, 1953, and in March, 1954.

The special examinations in Shorthand and Typewriting for the award of proficiency pay to employees of British European Airways were held in October, 1953, and April, 1954.

## TEACHER'S CERTIFICATE IN SHORTHAND

At the examination in November, 1953, there were 209 candidates, of whom 109 passed in all sections and four were 'referred' in the Speed Test only; in addition, 15 were granted exemption from Part I and 4 from Part II. Such exemption is at the discretion of the Panel and is conditional on the candidate's completion of the examination within twelve months. In May, 1954, there were 415 candidates, of whom 143 passed in all sections, 10 were 'referred' in the Speed Test only, 44 were granted exemption from Part I and 11 from Part II.

## TEACHER'S CERTIFICATE IN TYPEWRITING

At the examination in November, 1953, there were 70 candidates, of whom 31 passed in all sections, 11 were granted exemption from Part I and three from Part II.

In May, 1954, there were 236 candidates, of whom 78 passed in all sections, 38 were granted exemption from Part I and two from Part II.

## EXAMINATIONS IN ROAD TRANSPORT SUBJECTS

The National Committee on Road Transport Education, which exercises supervision of Scheme 'B' of the transport examinations jointly with the Society, has agreed that in view of the cessation of Scheme 'A' the present Scheme 'B' shall be re-named 'The R.S.A. Examinations in Road Transport Subjects'. The syllabuses in the various subjects have been revised, and the scheme in 1955 and subsequent years will include an examination in 'Communication and Report Writing'. The examiners have always complained of the inability of candidates to express their knowledge in writing, and it is hoped that the introduction of this new subject, which will be an examination in the practice of the English language but with the questions related to matters of interest in the transport industry, will help to overcome this handicap.

## [HOME COUNTIES] GROUPED COURSE EXAMINATIONS

As an increasing number of schools in different parts of the British Isles wish to present candidates for the Grouped Course Examinations, the title has been amended by the deletion of the words 'Home Counties'.

## ADVISORY SUB-COMMITTEES

For many years it was the practice of the Society for the examination syllabuses to be reviewed from time to time by special committees appointed for the purpose. But in July, 1953, it was decided that it would be more satisfactory for them to be reviewed annually, and Advisory Sub-Committees were appointed as follows:

*Arithmetic, Book-keeping, Accounting, Commerce*

- R. W. Walls, B.Com., B.Sc. (*Chairman*)
- C. E. Beevers, C.B.E., H.M.I.
- L. Cooper, B.Sc.
- J. G. C. Jackson, M.A., B.Sc., B.Com.
- A. G. Jarvis, B.Sc.
- A. J. McIntosh, B.Com., Ph.D.
- A. C. Marshall, B.Com.
- J. Platt, B.Com.

*Shorthand and Typewriting*

- R. W. Holland, O.B.E., M.A., M.Sc., LL.D. (*Chairman*)
- C. E. Beevers, C.B.E., H.M.I.
- E. W. Crockett
- J. G. C. Jackson, M.A., B.Sc., B.Com.
- A. C. Marshall, B.Com.
- J. Platt, B.Com.
- Miss D. Sulston
- Miss O. M. Wooster

*Law Subjects (including Public Administration)*

D. Wilsden, M.A., LL.B. (*Chairman*)  
 J. C. Banks, B.Sc.  
 C. E. Beevers, C.B.E., H.M.I.  
 A. J. McIntosh, B.Com., Ph.D.  
 A. C. Marshall, B.Com.  
 J. Platt, B.Com.  
 A. M. B. Rule, M.B.E., M.A., LL.B.  
 K. Smith, M.Sc., B.Com., Ph.D.  
 D. L. B. Spencer, M.A.

*Economics, Economic History, Economic Geography*

A. J. McIntosh, B.Com., Ph.D. (*Chairman*)  
 R. G. Agate, B.A.  
 C. E. Beevers, C.B.E., H.M.I.  
 J. L. D. Ciano, B.Sc. (*Econ.*)  
 J. G. C. Jackson, M.A., B.Sc., B.Com.  
 D. C. A. Ker, B.Com., B.Sc.  
 H. Lucas, B.Com., B.Sc.  
 A. C. Marshall, B.Com.

*Foreign Languages, Welsh, Esperanto*

J. P. Ivens, M.A., B.Com. (*Chairman*)  
 C. E. Beevers, C.B.E., H.M.I.  
 A. Hay, M.A.  
 S. J. Higgins, B.A.  
 J. W. Lorimer, B.A., Ph.D.  
 A. C. Marshall, B.Com.  
 C. E. Smith, B.Sc., B.Com.

*English, English Language, English for Foreigners*

J. P. Ivens, M.A., B.Com. (*Chairman*)  
 C. E. Beevers, C.B.E., H.M.I.  
 Mrs. L. Cocks, B.A.  
 H. A. Curnow, B.Sc.  
 W. A. L. Lenègre, M.B.E., J.P., F.R.Econ.S.  
 A. C. Marshall, B.Com.  
 Miss D. E. Nettleton, M.A.  
 L. E. Pead

*School and Senior School Commercial Certificate Examination*

J. G. C. Jackson, M.A., B.Sc., B.Com. (*Chairman*)  
 Miss N. G. Green, B.A.  
 R. H. Keast, B.A.  
 Mrs. E. M. McWilliam, B.Sc.  
 A. C. Marshall, B.Com.  
 W. T. Smith, M.Com.  
 Miss E. Townsend, B.A.  
 H. P. Williamson, M.Sc.

A number of meetings were held during the Session and as a result the following recommendations, to take effect in 1955, have been approved by the Examinations Committee:

- (a) Institution of new examinations in (i) Outlines of Central and Local Government, Stage II, (ii) Income Tax Law and Practice, Stage III, and (iii) Law of Trusts, Stage III.
- (b) Cessation of examinations in (i) Equity, Stage III, and (ii) Railway Law and Practice, Stage III.
- (c) Revision of syllabuses in (i) Economics (previously entitled 'Economic Theory'), Stages II and III, (ii) Economic Geography, Stages I, II, and III, and (iii) Shorthand at all speeds; also in Esperanto, Welsh, and Foreign Languages, Stages I and II only.
- (d) Reclassification of examinations in 'English Language, Parts I and II', as 'English Language, Stages I and II'.
- (e) Revision of regulations for the award of School and Senior School Commercial Certificates.

In addition, revised syllabuses in History, Stage I, and in Economic and Social History, Stages II and III, have been approved, but although they have been published, they will not be introduced until the examinations of 1956, in view of the extensive changes which they contain.

The Society is deeply indebted to the members of these Advisory Sub-Committees, and also to the members of the various other committees connected with the examinations, for their help and advice.

#### GENERAL CERTIFICATE OF EDUCATION

Examinations for the award of a General Certificate of Education will be offered in 1955 by the Associated Examining Board, on which the Society's representatives are Dr. R. W. Holland and the Examinations Officer. The syllabuses in the various subjects of examination have been designed essentially for students of secondary commercial, secondary technical, and secondary modern schools.

#### ASSOCIATE MEMBERSHIP

Two Silver Medallists at the Society's examinations in 1953, who were eligible for the award of Associate Membership, were elected last autumn.

**TABLE OF RESULTS OF THE L.C.C. GROUPED COURSE  
EXAMINATIONS, 1954**

COMMERCIAL AND GENERAL GROUPS—STAGE I

SUBJECTS	Passed with Credit			Passed			Not Passed			Papers worked at Whitsun and Summer combined	
	Whitsun	Summer	Total	Whitsun	Summer	Total	Whitsun	Summer	Total		
Arithmetic	—	1	1	8	3	11	12	7	19	31	
Arithmetic & Accounts	—	9	9	4	21	25	15	21	36	70	
Commerce	3	1	4	12	41	53	2	14	16	73	
Economic Geography	—	2	2	7	2	9	4	2	6	17	
English	2	10	12	18	87	105	24	103	127	244	
French	—	1	—	1	8	9	13	6	19	30	
History	—	1	1	1	1	2	1	1	2	5	
Shorthand, 50 w.p.m.	1	4	5	1	14	15	2	71	73	93	
“ 60 “ “	—	11	11	1	11	12	—	18	18	41	
Typewriting	2	40	42	2	40	42	5	84	89	173	
Totals	9	79	88	62	222	284	78	327	405	777	

COMMERCIAL AND GENERAL GROUPS—STAGE II

SUBJECTS	1st Class			2nd Class			Not Passed			Papers worked at Whitsun and Summer combined	
	Whitsun	Summer	Total	Whitsun	Summer	Total	Whitsun	Summer	Total		
English	—	—	—	—	1	1	1	9	10	11	
Shorthand, 80 w.p.m.	—	—	—	—	5	5	—	6	6	11	
Typewriting	—	—	—	—	7	7	—	3	3	10	
Totals	—	—	—	—	13	13	1	18	19	32	

TECHNICAL GROUP

SUBJECTS	Passed with Credit			Passed			Not Passed			Papers worked at Whitsun and Summer combined	
	Whitsun	Summer	Total	Whitsun	Summer	Total	Whitsun	Summer	Total		
English	28	47	75	135	470	605	13	240	253	933	
Mathematics	96	227	323	34	176	210	9	101	110	643	
Science	31	89	120	22	131	153	26	183	200	482	
Technical Drawing	16	74	90	75	256	331	67	411	478	809	
Trade Calculations	34	66	100	10	96	106	5	92	97	303	
Totals	205	503	708	276	1129	1405	120	1027	1147	3260	

## TABLE OF RESULTS OF THE HOME COUNTIES GROUPED COURSE EXAMINATIONS, 1954

## COMMERCIAL AND GENERAL GROUPS—STAGE I

SUBJECTS	Passed with Credit			Passed			Not Passed			Papers worked at Whitsun and Summer combined
	Whit-sun	Sum-mer	Total	Whit-sun	Sum-mer	Total	Whit-sun	Sum-mer	Total	
Arithmetic ... ...	—	4	4	2	12	14	12	23	35	53
Arithmetic & Accounts	—	5	5	—	31	31	8	48	56	92
Commerce ... ...	2	2	4	4	28	32	2	12	14	50
Economic Geography	4	14	18	7	9	16	—	10	10	44
English ... ...	6	5	11	15	87	102	4	63	67	180
French ... ...	—	—	—	2	2	4	9	10	10	23
History ... ...	3	3	6	5	7	12	2	11	13	31
Shorthand, 50 w.p.m.	—	6	6	1	14	15	2	40	42	63
" 60 "	—	25	25	—	11	11	—	10	10	40
Typewriting ... ...	—	28	28	2	26	28	1	55	56	112
Totals ... ...	15	92	107	38	227	265	40	282	322	694

## TECHNICAL GROUP

SUBJECTS	Passed with Credit			Passed			Not Passed			Papers worked at Whitsun and Summer combined
	Whit-sun	Sum-mer	Total	Whit-sun	Sum-mer	Total	Whit-sun	Sum-mer	Total	
English ... ...	52	71	123	542	552	1094	164	127	291	1508
Mathematics ... ...	267	263	530	175	215	390	170	163	333	1253
Science ... ...	105	150	255	175	194	369	193	162	355	979
Technical Drawing ...	38	58	96	259	233	492	386	315	701	1289
Trade Calculations ...	196	180	385	72	134	206	42	52	94	685
Totals ... ...	658	731	1389	1223	1328	2551	955	819	1774	5714

TABLE OF RESULTS OF  
THE ROAD TRANSPORT EXAMINATIONS, 1954

	<i>Scheme A</i>	<i>Papers Worked</i>	<i>1st Class</i>	<i>2nd Class</i>	<i>Not Passed</i>
<i>Group I</i>	Commerce and Business Routine . .	1	1	—	—
	Elements of Transport . .	1	—	—	1
<i>Group II</i>	Principles of Accounts . .	3	—	2	1
	Economics Applied to Road Transport . .	1	—	1	—
<i>Group III</i>	Elementary Statistics . .	7	—	3	4
	Law of Inland Carriage . .	4	—	4	—
	Road Transport Operation . .	3	2	1	—
<b>Totals . .</b>		<b>20</b>	<b>3</b>	<b>11</b>	<b>6</b>

*Scheme B*

<i>1st Year</i>	Road Transport Operation (Passenger) . .	257	33	129	95
" "	" (Goods) . .	43	2	23	18
	Elements of Road Transport Engineering . .	139	55	54	30
	Road Transport Accounts and Statistics . .	171	12	95	64
<i>2nd Year</i>	Road Transport Operation (Passenger) . .	141	32	86	29
" "	" (Goods) . .	34	3	18	13
	Elements of Road Transport Engineering . .	83	30	40	13
	Road Transport Accounts and Statistics . .	101	13	43	45
<i>3rd Year</i>	Road Transport Operation (Passenger) . .	115	41	62	12
" "	" (Goods) . .	37	5	21	11
	Road Transport Accounts and Statistics . .	85	16	40	29
	Economics Applied to Road Transport . .	104	11	46	47
<b>Totals . .</b>		<b>1,310</b>	<b>253</b>	<b>651</b>	<b>406</b>

**SCHOOL AND SENIOR SCHOOL COMMERCIAL CERTIFICATE EXAMINATIONS, 1954**

NUMBER OF FULL CERTIFICATES AWARDED

*School Commercial Certificate*

Candidates, 971; First-class Certificates, 66; Second-class Certificates, 459

*Senior School Commercial Certificate*

Candidates, 284; First-class Certificates, 6; Second-class Certificates, 70.

TABLE SHOWING THE NUMBER OF PAPERS WORKED IN THE SCHOOL AND SENIOR SCHOOL COMMERCIAL CERTIFICATE EXAMINATIONS IN 1954 TOGETHER WITH THE RESULTS

SUBJECTS	SCHOOL COMMERCIAL CERTIFICATE EXAMINATION				SENIOR SCHOOL COMMERCIAL CERTIFICATE EXAMINATION			
	Number of Papers worked	Passed with Credit	Passed	Not Passed	Number of Papers worked	Passed 1st Class	Passed 2nd Class	Not Passed
Arithmetic ... ...	976	194	491	291	285	25	96	164
English ... ...	967	41	697	229	298	6	110	182
Book-keeping ... ...	836	232	390	214	270	58	91	121
Commerce ... ...	724	24	536	164	285	11	148	126
Shorthand : 50 w.p.m. ... ...	496	104	105	287	—	—	—	—
50 " (Typed Transcript) ... ...	11	3	4	4	—	—	—	—
60 " ... ...	303	138	89	76	—	—	—	—
60 " (Typed Transcript) ... ...	1	1	—	—	—	—	—	—
*80 " ... ...	—	—	—	—	112	—	53	59
*100 " ... ...	—	—	—	—	21	—	16	5
Typewriting ... ...	871	265	240	366	152	2	28	122
Economic Geography ...	894	97	507	390	275	27	134	114
French† ... ...	244	39	141	64	18	3	7	8
History ... ...	456	89	210	151	18	4	6	8
History of the British Empire ... ...	120	14	50	50	173	28	79	66
Mathematics ... ...	270	87	79	104	158	7	20	131
Science ... ...	89	8	30	51	29	—	2	27
Spanish ... ...	47	—	—	47	44	—	1	43
Welsh ... ...	1	—	—	1	—	—	—	—
<b>Totals ...</b>	<b>7,306</b>	<b>1,336</b>	<b>3,581</b>	<b>2,380</b>	<b>2,138</b>	<b>171</b>	<b>791</b>	<b>1,176</b>

\* In Shorthand at 80/100 w.p.m. there is one class of pass only.

† 7 Candidates took the oral test in French: 3 passed with credit, 3 passed, and 1 failed.

**DETAILS OF THE ORDINARY (SINGLE-SUBJECT)  
EXAMINATIONS, 1954  
(INCLUDING AUTUMN SERIES, 1953)**

SUBJECT	Stage	Papers worked	1st Class (or Passed with Credit in Stage I)	2nd Class (or Passed in Stage I)	Not Passed	Total number of papers worked in each subject	
						1954	1953
Accounting	III	108	9	32	67	108	97
Advertising	III	33	7	13	13	33	22
Arithmetic	I	4,476	692	1,657	2,127	5,492	4,846
"	II	868	123	303	442		
"	III	148	21	72	55		
Book-keeping	I	6,640	1,388	2,901	2,351	10,720	11,415
"	II	2,987	844	1,168	975		
"	III	1,093	33	412	648		
Cargo Insurance	III	35	9	17	9	35	—
Commerce	I	1,220	35	657	528	1,699	1,874
"	II	404	10	111	283		
" (Finance)	III	40	1	13	26		
" (International)	Trade	23	—	7	16		
" (Marketing)	III	12	—	3	9	242	201
Commercial Law	II	185	33	104	48		
"	III	57	12	34	11		
Common Law	III	32	1	15	16	32	20
Company Law	II	47	8	26	13	67	67
"	III	20	4	8	8		
Costing	II	104	5	58	41	136	116
"	III	32	—	20	12		
Danish	I	10	2	5	3	22	15
"	II	12	3	7	2		
Dutch	I	16	6	6	4	22	24
"	II	6	1	3	2		
Economic Geography	I	905	103	347	455	1,130	905
"	II	168	22	79	67		
"	III	57	4	29	24		
Economic & Social History	II	102	25	42	35	169	178
"	III	67	12	22	33		
Economic Theory	II	371	31	181	159	537	450
"	III	166	10	91	65		
Elements of English Law	II	93	14	44	35	93	91
English	I	3,612	215	1,961	1,436		
"	II	1,338	59	635	644	5,760	6,612
"	III	810	43	486	281		
English for Foreigners	I	648	202	276	170	1,804	1,539
"	II	872	163	442	267		
"	III	284	31	161	92		
English Language, Part I	—	5,883	—	3,490	2,393	7,933	4,171
"	II	2,050	147	953	950		
"	III	3	—	1	2	66	29
Equity	I	31	13	9	9		
Esperanto	II	24	5	10	9	1,729	1,504
"	III	11	3	6	2		
French	I	1,130	152	416	562	464	383
"	II	369	52	116	201		
"	III	230	38	86	106		
German	I	263	56	115	92	244	113
"	II	141	29	68	44		
"	III	60	9	33	18	113	94
History	I	244	32	87	125		
History of the British Empire	I	43	4	12	27		
"	II	45	—	14	31		
"	III	25	2	15	8		

**DETAILS OF THE ORDINARY (SINGLE-SUBJECT)  
EXAMINATIONS, 1954**

(INCLUDING AUTUMN SERIES, 1953)—continued

SUBJECT	Stage	Papers worked	1st Class (or Passed with Credit in Stage I)	2nd Class (or Passed in Stage I)	Not Passed	Total number of papers worked in each subject	
			1954	1953			
Italian	I	166	74	66	26	239	250
	II	50	15	22	13		
	III	23	3	16	4		
Law of Evidence and Civil Procedure	III	—	—	—	—	—	6
Public Administration	III	48	4	26	18	48	67
Real Property and Con- veyancing	III	5	—	5	—	5	14
Russian	I	26	10	11	5	50	73
"	III	15	4	3	8		
"	III	9	2	2	5		
Shipping Law & Practice	III	34	1	19	14	34	5
Spanish	I	364	62	113	189	511	476
"	II	101	38	30	33		
"	III	46	17	23	6		
Statistics	II	44	16	19	9	62	72
"	III	18	6	9	3		
Stock Exchange Law and Practice	I	22	2	9	11		
"	II	—	—	—	—	29	57
"	III	7	2	3	2		
Swedish	I	—	—	—	—	—	23
"	II	—	—	—	—		
"	III	—	—	—	—		
Typewriting	I	20,557	6,589	6,403	7,565	37,869	35,156
"	II	12,667	2,761	4,191	5,715		
"	III	4,645	592	1,681	2,372		
Welsh	I	25	7	14	4	25	—
		Papers worked	Passed with Credit	Passed	Not Passed		
Shorthand :							
50 words per minute	...	9,190	1,852	2,957	4,381	40,505	38,184
50 " (Typed Transcript)	...	247	44	115	88		
60 words per minute	...	7,288	2,501	2,633	2,154		
60 " (Typed Transcript)	...	270	125	98	47		
		Papers worked		Passed	Not Passed		
80 words per minute	...	13,174	7,662	5,512			
100 "	...	5,952	2,910	3,042			
120 "	...	3,932	1,601	2,331			
140 "	...	452	167	285			
Shorthand-Typist's Certificate							
Stage II	...	2,612	1,885	727	2,908	2,493	
Stage III	...	296	114	182			
	TOTALS	...	120,938	111,642			

# PROGRESS TOWARDS THE ERADICATION OF LEPROSY FROM THE BRITISH COMMONWEALTH

*A paper by*

**MAJOR-GENERAL SIR LEONARD ROGERS,**

*K.C.S.I., C.I.E., M.D., F.R.C.P., F.R.S., read  
to the Commonwealth Section of the Society on  
Tuesday, 25th May, 1954, with Sir Selwyn Selwyn-  
Clarke, K.B.E., C.M.G., M.C., M.D., F.R.C.P.,  
Chairman of the Commonwealth Committee, in  
the Chair*

**THE CHAIRMAN:** It is my very pleasant privilege this afternoon to introduce our speaker, Major-General Sir Leonard Rogers. This may well be an act of supererogation on my part because his name must be familiar to many of you here, just as it is to many people in India, Africa, China, the United States of America and throughout the world.

Sir Leonard entered the Indian Medical Service in 1893. I do not think I need remind you that conditions for research workers in those days, in the hot and humid climate of the Ganges Delta where he did much of his work, were very different from now. There were no frigidaires, air-conditioned rooms or electric fans in the hospitals, laboratories and private houses. I remember—it must be over thirty years ago—when I first had the pleasure of meeting Sir Leonard and his late wife. Lady Rogers told me that he was such a hard worker that he used to insist on bringing his microscope back to the bungalow with him from the laboratory, and he would be working until all hours of the night with perspiration dripping off his brow.

In his Indian service Sir Leonard earned high honours from the Crown and equally high academic distinction from universities and from fellow members of his profession for his outstanding contribution to our knowledge of various tropical scourges, including cholera, the dysenteries, Kala-azar and, of course, leprosy.

Mention of the dysenteries reminds me that it was Sir Leonard who, in 1912, discovered that the active principle of the ipecacuanha root, which some of the older amongst you may have been given when you had croup as a small child (a very nauseating mixture), or emetine, as it is called, was actually the curative factor in that drug. I remember this in particular because, in August, 1914, two years later, when I was with a London field ambulance, we were issued with R.A.M.C. panniers that had been made for the Boer War. The tablets in one of these panniers were labelled 'Ipeca sine Emetine', which was, of course, quite useless for the purpose for which it was supposed to be used.

After his retirement from the Indian Medical Service, in 1920, Sir Leonard became a member of the Medical Board, and later the Medical Adviser to the Secretary of State for India, but he devoted the major part of his time to problems of leprosy, about which he is going to talk to us this afternoon. One of his first outstanding successes, to my mind, was to found the British Empire Leprosy Relief Association

with the assistance of Sir Frank Carter and the Reverend Frank Oldrieve. BELRA, as it was called for short, did Trojan work in bringing to the notice of Colonial Governments the importance of research into the leprosy problem, in regard to its incidence, treatment and cure. I still have a very vivid recollection of the inaugural meeting of that Association and I am glad to say that I see amongst the audience here to-night certain of those who were present. BELRA established leper colonies, financed research into the drugs used in the cure of leprosy and recruited personnel.

It is only fitting here that I should pay a warm tribute to Sir Leonard for the immense efforts he has made to bring a gleam of hope to the vast numbers suffering from leprosy in various parts of the world. As you can imagine, this has entailed the constant sacrifice of a great deal of time and substance at an age when many of us would have been satisfied to retire from active work and to have permitted ourselves that measure of relaxation and recreation to which we feel entitled in the eventide of our lives.

So much for the lecturer; now just a few words on the subject of his address this evening. I think that I shall be speaking for my fellow members on the Commonwealth Committee of this Society when I say that we consider it part of our functions to give encouragement to any person or organization aiming at bringing relief to the inhabitants of the member countries of the British Commonwealth. True, since the Second World War, India, Pakistan, Ceylon and Burma have all attained independence, but we are still bound by bonds of friendship; moreover, we are still the main trustees to the 70 millions in our Colonies, amongst whom there are, I believe, something like three-quarters of a million lepers at the present time. As trustees it is clearly our duty to help to raise the standard of nutrition and hygiene, education and well-being, and to secure freedom from preventable disease like leprosy amongst them. For this reason I have now great pleasure in inviting Sir Leonard to address us on the progress made towards the eradication of leprosy in the British Commonwealth.

*The following paper, which was illustrated with lantern slides, was then read:*

#### THE PAPER

Up to forty years ago no material progress had been made for centuries in either the treatment or control of leprosy. Yet recent medical reports of our tropical African territories have envisaged the eradication of the disease as a possibility. My object this afternoon is to give some account of how this remarkable advance has been brought about. As recently as 1946 I read a paper on this subject at the Royal Society of Arts, which must be summarized before I deal with the advances of the last eight years.

#### FAILURE OF THE OLD TYPE OF COMPULSORY SEGREGATION

For centuries the only measure for control of leprosy was compulsory segregation, nearly always for life, which may be 20, 50 or in one recorded case 80 years, at great and in most cases unnecessary cost; this was due to the popular dread of a deforming and crippling disease. Thus the three European leprosy conferences of 1897, 1909 and 1923 all unanimously recommended its continued use, although the last of them, on my motion, added a recommendation that the best available treatment should be supplied, for daylight was beginning to dawn.

Yet a study of the medical literature of the past fifty years revealed no clear evidence that compulsory segregation had ever resulted in any material reduction

of leprosy in any hot humid climate, in which I found that 99 per cent of cases occur. For example, a century of its enforcement in South Africa even failed to avert a steady increase in the incidence of leprosy, in the absence of any effective treatment, and 44 years of its rigid enforcement in the Philippines has also completely failed in attaining its avowed object of stamping out the disease. Such expensive failures were due to wholesale hiding of the symptoms through the victims' fear that they would be treated worse than criminals; for in both countries the duration of the symptoms before discovery and isolation was six and a half to nine years, during which they had infected their children and other close contacts.

In India for one thousand years the nauseating chaulmoogra and hydnocarpus oils had been used orally in leprosy, but they failed to do more than slightly retard the progress of the disease. In Calcutta I first used the lower melting point hydnocarpic acid orally in early cases and found it to be less nauseating and more effective than the whole oils. This led me to try to obtain a soluble compound suitable for injection and in 1915, with the help of a chemist, I made sodium hydnocarpate and injected weak solutions subcutaneously, intramuscularly and intravenously. By 1917 I had established its efficacy in clearing up the lesions of cases treated within three years of the first appearance of symptoms. Moreover, it produced an encouraging breaking up of the lepra bacilli in cutaneous lesions. On the other hand, it failed to do more than alleviate to some extent the symptoms of the advanced cases seen in leper asylums in India.

Compulsory segregation had now become positively harmful because it led to the only cases amenable to the improved treatment being hidden until they had become too advanced to benefit from it. The whole question of leprosy control thus required to be reconsidered.

On my return to England in 1920 I was able to devote nearly all my time for three years to a comprehensive study of the literature of leprosy with results which may be briefly summarized thus:

#### *Conditions under which leprosy is contracted*

1. Allowing for the incubation period, from 50 to 75 per cent of infections are contracted in childhood or adolescence.
2. The incubation period averages three and a half years; in some 80 per cent of cases it does not exceed five years.
3. In 113 cases in which the source of infection was traced, 95 per cent had been derived from close house contact with a muco-cutaneous (lepromatous) case, with myriads of lepra bacilli being discharged from the nasal mucous membrane. Only the remaining 5 per cent had been contracted from neural cases, with very few bacilli in their tissues, from which they cannot easily escape. Some of them may have been mixed types.
4. Among 700 cases in which the source of infection was traced, almost 60 per cent had lived for long in the same house as a previous case and nearly all the rest had been in close contact with one. A few cases were clearly due to inoculation from another case, including three surgeons who developed the first symptoms

in the very finger which had been injured while operating on a leprosy patient.

It thus became clear that early cases must be looked for mainly in the same house as a previous case or that they had otherwise been in close contact with such a one.

*Plan for the control and reduction of the incidence of leprosy*

I was now able to formulate the following plan for controlling leprosy.

1. Only the infective lepromatous cases, which constitute one-fifth to one-fourth of the total cases as a rule, need to be isolated, on a voluntary basis as far as possible with the attraction of receiving the benefits of modern treatment. This will bring about a corresponding decrease in cost as compared with that of the old compulsory segregation of all types. Surveys of the whole population in badly infected areas, or in all houses in which cases and their close contacts are found, are required to find and isolate the sources of infection.

2. As many children in the incubation period will be left in the houses, all such contacts must be examined by a leprologist every year or two for a decade to allow of the detection of newly developing cases in the very early curable stage and their economical treatment at special out-patient clinics, and at hospitals and dispensaries.



*A boy, aged 14, to illustrate gross deformity of the face in an untreated mucocutaneous (lepromatous) case of leprosy. Such advanced cases are now preventable by early detection and modern treatment*

The necessity for the last measure is clearly shown by the fact that at a third such survey of a tribe of 7,000 people in Nigeria, although not a single infective case was found, yet forty very early cases had developed since the last survey, which could soon be cleared up by out-patient treatment.

The small South Pacific island of Nauru was infected in 1912 under the then German authorities. After an influenza epidemic the 'disease' spread to such an alarming extent that when, on my advice, the Australian medical authorities in 1925 made a survey of the small indigenous population, 386 cases, or 300 per mille, were discovered, nearly all in an early stage. My plan was carried out; three years later 40 per cent of the cases had recovered under the hydncarprate injection treatment, and at the end of eight years Grant reported a decline of

two-thirds of the total cases: an unprecedented and most encouraging reduction. In 1952 Wade and Ledowsky recorded a further fall to only one-seventh of the numbers in 1925, but part of the credit (?) must be accorded to the Japanese, who, on capturing the island in the Second World War, took the remaining infective cases out to sea in a leaky boat and they were never heard of again.

#### LARGE SCALE CONTROL TRIAL IN SOUTHERN SUDAN

The next trial was under most unfavourable conditions in the humid southern Sudan by Atkey, where 7,075 cases were moved to new agricultural colonies and, under hydncarbate injections, 3,679, or 52 per cent, had been cleared of all active symptoms during three years. Unfortunately the Second World War disrupted the trial and in 1951 Abbott reported that there remained no evidence of the reduction of leprosy during the last twenty years. He attributed this relapse 'not to the method of control adopted, but to the impossibility of carrying it out for want of adequate staff and resources'.

#### SOUTH AFRICA

In South Africa, when bacteriological examinations of 2,501 cases in a leprosarium were made, no less than 862 were found to be negative uninfective cases. They were released and, for the first time in a century of compulsory segregation of all discoverable cases of whatever type, early cases flocked voluntarily to the agricultural colonies which were established, for the sake of the hydncarbate injection treatment. Within a few years the duration of the symptoms on admission fell from the former rate of six and a half years to only two years, and voluntary admissions rose from 65 to 90 per cent.

As the result of this new policy, fifteen years later in 1938, 4,502, or 66 per cent of the greatly increased number of known cases, had been discharged as uninfective, and by 1953 the number of recovered cases had increased to 12,000. Leprosy is now on the decline in the Union, for Davidson has reported that an incidence of 2.21 per mille in 1907 had fallen to only 0.77 in 1953. The compulsory segregation law was retained on account of the widely distributed nature of the disease, at a recent cost of £250,000 annually, but compulsion was kept in the background. Only such a great gold producing country can afford such an expenditure.

#### LARGE SCALE CONTROL OF LEPROSY IN SOUTH-EAST NIGERIA

In the meantime the British Empire Leprosy Relief Association (BELRA for short) had been founded and its general and medical committees had accepted unanimously the plan for the control of leprosy already described. Successive medical secretaries, Cochrane and Muir, toured our colonies to advise on leprosy control work and to find the most suitable area for a large scale trial of the control plan, with the help of medical missionaries, and the south-eastern provinces of Nigeria were chosen. Macdonald organized the largest leprosy settlement in the British Empire at Itu with 4,000 cases, and he recently discharged recovered up to 800 cases a year. Money organized a settlement at Oji River, where by 1944 over 14,000 patients were being treated at numerous

clinics by hydncarpate injections at a cost for the drug of only 3s. 4d. a case per annum—about the price of a bottle of tonic medicine in this country.

In the Owerri province, with two million inhabitants, Brown organized a settlement at Uzuakold, and when he became leprosy expert for Uganda, Davey carried on the work for a decade or more. In 1943 he was able to record that 1,179 advanced cases were under regular treatment in the central Uzuakoli leprosarium, and that 1,807 highly infective cases were under voluntary isolation with treatment in 37 model villages constructed for them at the cost of the local chiefs. In addition early cases treated at forty outlying clinics brought the total cases under treatment up to 18,554. He has also recorded that an intensive survey in 1941 revealed the very high incidence of 118 per mille of active leprosy cases in the Bende division. Yet seven years later in 1948 that incidence had fallen to only 62 per mille and this decline showed itself before the sulphone treatment (dealt with later) had become general, for the large-scale use of sulphones in the form of DDS only became widely used in 1949 according to the Nigeria annual medical reports. Thus all the foregoing examples of the control of leprosy belong to the era of injections of solutions of hydncarpates and such modifications as the similar use of chaulmoograte and hydncarpate esters, which lasted from 1917 to 1947.



*An advanced untreated nerve case, crippled for life through neglect of treatment, with loss of toes and paralysed and deformed powerless claw hands with shortened and contracted fingers*

In 1954 Davey was able to report that during the previous three years, with the general use of DDS tablets orally under the Nigerian Government, unprecedented progress had been made in the anti-leprosy campaign in Nigeria as a whole with financial support through the Colonial Development and Welfare Fund. Thus approximately 50,000 patients, out of an estimated total of 400,000 cases among a Nigerian population of 25,000,000, were under regular treatment. Moreover, during the preceding two years the treatment centres had increased by 45 per cent to 269, and segregation villages by 48 per cent to 302. It had also become possible to establish clinics at general hospitals, so continued rapid extension of the control measures can confidently be anticipated owing to the clamour of the people for the more effective sulphone drugs.

What a contrast to the experience in French West Africa early in this century of Robineau, who reported that an attempt to isolate leprosy cases compulsorily with the aid of soldiers failed completely owing to their all being hidden!

## EAST AFRICAN TERRITORIES

A study of some two hundred annual medical reports of this vast area during the last three decades shows that all the earlier leprosy control work was carried out by medical missionaries with BELRA help. Thus in the early 1920s the Church Missionary Society founded a leprosy settlement on an island in Lake Bunyoni in a heavily infected area of West Uganda. A home for infected children and a settlement for advanced cases were also opened in the Tezo district of East Uganda.

It is therefore of great interest to note that by 1951 careful surveys by Ross Innes, who was appointed leprologist for East Africa in 1945, revealed that the leprosy incidence in the Lake Bunyoni area had declined from 25 to 30 per mille to only 6·1 per mille and that a very similar fall had taken place around the new institutions in East Uganda.

Ross Innes carried out large scale surveys in Uganda, Kenya, Tanganyika, Nyasaland and North Rhodesia, which yielded estimates of 245,000 cases of leprosy, 53,080 of which were infective lepromatous ones, which require to be isolated, among a population of 15,000,000 spread over 1,300,000 square miles of territory—truly a formidable task.

Three leprosaria, each to accommodate one thousand infective cases, are under construction, with a research laboratory at one of them for epidemiological and therapeutic inquiries, and 4,000 out-patients are already attending one of them from some fifteen to thirty miles around. Clinics at government and mission hospitals and dispensaries are being opened, together with many special clinics around leprosaria. Thanks to a happy combination of the resources of Colonial Governments, BELRA, Toc H lay workers and medical missionaries, control measures are rapidly being extended over British East Africa, which with Nigeria are estimated to contain about four-fifths of the leprosy cases in British territories.

## FIJI

Here Austin found it necessary to retain compulsory segregation powers in view of the leprosy cases being scattered over many small islands. By concentrating them at a central leprosarium he has obtained a reduction of the advanced nerve cases, comparing the years 1911-33 with 1934-48, from 173 to 14, and of the highly infective advanced lepromatous ones from 212 to 48. This decrease has



*A fairly early muco-cutaneous (lepromatous) infective type, amenable to modern treatment.*

enabled him to accommodate cases from such South Oceanic islands as Samoa, Gilbert and Cook islands to the extent of one-third of the total cases now in the Fiji leprosarium, greatly to their advantage.

## LEPROSY CONTROL IN THE WEST INDIES

Results here have been very disappointing, for unfortunately repeated visits of BELRA medical secretaries have failed to get our plans carried out except in the neighbouring British Guiana, which was the first of our Colonies to modify their compulsory segregation laws to permit early uninfective cases of leprosy to be treated at very low cost at out-patient dispensaries with the good results recorded in my 1946 paper.

In Jamaica, Muir on a second visit in 1944 found that his advice on an earlier visit had not been carried out: for he discovered 17 known infective lepromatous cases living in close house contact with 47 children of a most susceptible age! Yet at the cost of isolating cases of £50 per annum (at St. Lucia Island the figure was £52) I estimate that one million dollars must have been expended uselessly on compulsory isolation in Jamaica during the past thirty years!

The question may therefore be asked: can Jamaica afford *not* to carry out the now available leprosy control measures? For the average stay in their asylum is recorded to have been 9 to 13 years and one unfortunate patient has been segregated for 50 years, at a probable cost of £2,500, although almost certainly an uninfective nerve case whose isolation contributed nothing to reducing new infections.

The Windward and Leeward Islands are too small for adequate control measures to be provided in each. Unfortunately, except in the case of St. Lucia, which sent twenty leprosy cases to be treated with advantage in the British Guiana leprosarium, the people of these islands have objected to going to well-equipped settlements in neighbouring areas. It is to be hoped that demonstrations in each island of the remarkable effect of sulphone treatment in clearing up the facial disfigurements of lepromatous cases will overcome their objections.

Trinidad has for long had a large leprosarium but unfortunately, in accordance with the prevailing views at the time, it was placed on a barren and waterless island with little or no land to cultivate. A committee in 1946 reported that after twenty years of compulsory segregation there was no evidence of any reduction in the incidence of leprosy; yet they considered that an intensive campaign should control or stamp out leprosy in a generation. They therefore advised the construction of an agricultural settlement on the mainland, at an estimated capital expenditure of \$2,000,000 and an annual recurring one of \$212,000 which was considered to be prohibitive. On the other hand, I estimate that their wasteful expenditure during almost thirty years on the old type compulsory segregation now amounts to approximately \$1,000,000. As their committee examined the question before large scale sulphone treatment at an economical rate had been established, Trinidad should reconsider the matter in view of their long interest in the leprosy question.

## INDIA

Before I retired from India in 1920 I was fortunately able to provide for a whole time leprosy research post in the Calcutta School of tropical medicine, with laboratory accommodation and an out-patient department at the Tropical Diseases Hospital, for my friend Ernest Muir. Extensive surveys enabled him to work out his survey-propaganda treatment plan, and by 1941 the 1931 census estimate of the total leprosy cases in India had been raised from 150,000 to 1,200,000, of which number 300,000 were infective lepromatous cases. In 1925 the viceregal appeal of Lord Reading realized £150,000, the interest on which has only allowed of the establishment of several hundred clinics for out-patient treatment of cases, which must have prevented many thousands of early cases going on to infective or crippled stages.

Under Indian administrative control in recent years the Gandhi memorial association has raised nine million rupees, or £675,000. This is wisely being spent in organizing modern control methods in 15 fully controlled areas scattered over India, as demonstrations of what is now possible and to stimulate further efforts to solve the great task by the gradual extension of the established methods of control.

## DISCOVERY OF THE SULPHONE TREATMENT OF LEPROSY

The greatest advance during the last decade was the discovery by American leprologists, at the world's best staffed and financed leprosarium at Carville in the Southern United States, of sulphone treatment of leprosy and its establishment at an economically practicable level on a large scale by British workers. The mother sulphone, or DDS, in 1940 had been found to be effective in experimental tuberculosis in guinea-pigs, and by 1943 Faget and his Carville colleagues reported that a compound called promin given intravenously was far more effective in leprosy than any previously known drug. It was most active against the vascular lesions of the nose, mouth and throat, with destruction of the lepra bacilli and great reduction of the infectivity of the cases. The deforming cutaneous lesion of the face and other parts resolved more slowly with less complete destruction of the lepra bacilli owing to the low vascularity of these tissues. In 1944 Muir reported favourably on oral treatment with diasone, but the earlier sulphones were too costly for general use in tropical countries with high leprosy incidence.

This drawback has now been overcome by the injections of sulphetrone by Cochrane and by the finding of Lowe that DDS orally is quite effective in much smaller and less toxic doses. By each of these drugs cases can be treated for a year at less than one pound per head, the very successful large scale use of which in Nigeria has already been mentioned.

On the other hand, Erickson in 1950 recorded that long experience at Carville had shown that several year's sulphone treatment may fail to destroy all the lepra bacilli in cutaneous lesions, with the result that one-third of the lepromatous cases relapsed when the drug was left off, so he advises that small doses should be continued for several years after clinical recovery and Muir has recorded a similar warning.



*An advanced highly infective muco-cutaneous (lepromatous) patient aged about 30 years, who shows (left) typical great thickening of the ears, forehead and face, the symptoms having been of eight years' duration. The same patient after treatment by sulphones, etc. for only one year shows (right) very great improvement and reduction of infectivity.*

For this reason in 1948 I suggested the use of combined sulphones and hydncarpates in view of the bacteriocidal action of the earlier drug. This Muir has confirmed by giving sulphones orally and at the same time injecting hydncarpates into the cutaneous lesions on one side only, with greater destruction of lepra bacilli on the injected side. Other experienced leprologists have supported this proposal, but further bacteriologically controlled tests are required. The recognized advantages of giving two active drugs in the treatment of tuberculous disease may also have some significance.

#### PROPHYLAXIS OF CHILD CONTACTS

After removal of all infective cases from the houses of the people there will usually remain behind children already infected, but in the incubation stage taking three or more years before the first symptoms will appear. Promising prophylactic measures are under trial with a view to immunizing them against the disease.

1. *Treatment during the incubation period.* The most promising of these is prolonged treatment by the curative drugs now available, but conclusive results are not yet available.

2. *BCG prophylaxis.* In 1926 in a paper on resemblances between leprosy and tuberculosis I pointed out that very high leprosy incidence in West Africa was accompanied by a very low percentage of positive tuberculin reactions, in contrast to the reverse conditions in Western Europe. Moreover, Chaussinand

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has recorded data of European and other countries in support of the theory that a progressive driving out of leprosy by tuberculosis is attributable to relative cross-immunity between the two afflictions.

It has for long been known that the injection of killed lepra bacilli in the form of lepromin is of prognostic significance, for negative results are obtained in infective lepromatous cases but positive ones in mild nerve tuberculoid types. In 1939 Fernandez showed that injections of BCG vaccine, consisting of a non-pathogenic living tubercle bacillus, could convert a negative into a positive lepromin reaction indicative of increased resistance to leprosy infection. This led to the oral administration of the harmless BCG vaccine to children who had been exposed to infection through house contact with a leprosy case. Prolonged trials by Rosemberg and N. de Souza Campos have recently furnished the following conclusions.

BCG vaccine clearly has a protective effect as regards leprosy infection, as shown by its occurrence in only 0·6 per cent of 1,638 vaccinated children, against 5·6 per cent of 3,329 unvaccinated ones; a ninefold reduction. Moreover, among 179 cases among the unvaccinated, 47 or 26·8 per cent were infective lepromatous ones; among the few cases occurring in the vaccinated 'only tuberculoid leprosy developed'.

If these results are confirmed, the eradication of leprosy from a community will be facilitated greatly by protecting contacts from developing leprosy especially that of the infective type.



*A less advanced infective muco-cutaneous (lepromatous) patient aged 15 (left), whose symptoms had first been noticed only four months before admission. On the right is the same patient after 8½ months' treatment by sulphones, etc. with resolution of the lesions and a very great reduction in infectivity*

## CONCLUSION

Enough has been said to show that the outlook for the unfortunate victims of leprosy has been immeasurably improved during the last forty years and especially in the last decade. We may indeed envisage the possibility of the practical eradication of the disease from our Empire within a very few decades if—and it is a very big if—the essential staff and funds are forthcoming.

But the matter is urgent, for from recent surveys and other data I estimate that anything up to 100,000 helpless children are still becoming infected every year, quite unnecessarily, in British and Indian territories, for want of sufficient leprosaria and other accommodation for the separation of infective cases and clinics for treatment of uninfective ones.

Early in the nineteenth century Great Britain provided £20 million sterling—now worth six times as much—to abolish slavery from our dominions. And leprosy, in the disfigurement and the life-long crippling and blindness it produces, is worse than slavery. What we now require is a modern crusade to provide the means now available to save our Empire's children from the most cruel disease that human flesh is heir to.

## DISCUSSION

THE CHAIRMAN: I am sure you will agree that we have had a very interesting lecture from Sir Leonard, and I hope that you will also agree with me that he has established the fact that there is some possibility of the eradication of this terrible disease.

We have amongst us this evening a number of very distinguished leprologists including, I see, Dr. Ernest Muir, who succeeded Sir Leonard Rogers in Calcutta. We also have Dr. Fraser, who is in charge of the new leper Colony at Hai-Ling Chan, or the Island of the Happy Healing Spirit, off Hong Kong; Sir Philip Manson-Bahr, linked with the Fiji Islands recently, and next to him Sir George McRobert, connected with the new settlement, Jordans, established for lepers who have come back to this country. I do hope that some of these distinguished gentlemen will take part in the discussion.

One of the things which has always puzzled me, and perhaps the lecturer or others present may be able to tell me something about this, is the behaviour of leprosy in this country. I think Sir Patrick Manson, or at any rate his son-in-law Sir Philip Manson-Bahr, mentions in his book the fact that, according to Pliny, Pompey's legions brought leprosy from Syria in 61 B.C. to Italy. This may remind you of Chapter V in the Second Book of Kings, which refers to Naaman, the leper. He was a mighty man of valour, if you remember; he was also alleged to have leprosy, although leprosy in the Old Testament may have been some quite different disease. In the fifth and sixth centuries it is believed that the Roman legionaries took leprosy from Italy to Spain and it first came to England somewhere about the seventh century; at least it is said that the first leprosarium was established in Nottingham in A.D. 625. It became apparently quite common in various parts of Europe, including England. Many of you may have seen the little leper squints in some of the old Saxon churches in this country. But it started to disappear in England and in Europe generally in the fourteenth and fifteenth centuries. As far as I know, there was no improvement in nutrition or hygiene, nor was there any obvious connection between the occurrence of tuberculosis and leprosy in this country at about that time, causing the disease gradually to disappear. We did hear from Sir Leonard, if you remember, that about

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99 per cent of leprosy cases occur at the moment in hot and humid climates. Now it certainly occurred in a temperate climate in England and we have no reason to believe that there was any change in climatic factors in this country in the fourteenth and fifteenth centuries.

The second point I should like to draw your attention to in connection with Sir Leonard's paper is his reference to missionaries. I was able to start the first leper colony on the outskirts of Accra in 1919 and the treatment of lepers used to give me not only a headache but on many occasions a heartache. I found it not only required quite a lot of knowledge, technical knowledge and medical knowledge, but it also called for a definite spiritual vocation. If you remember, Sir Leonard mentioned about three times during the course of his address the value of medical missions and ancillary organizations like Toc H in the treatment of leprosy, and it is my firm belief that, helped by the Government, of course, those bodies are the best able to deal with this scourge.

I am now going to ask Sir Philip Manson-Bahr if he would be willing to say something about his very wide experience of tropical diseases and more particularly of leprosy in the Pacific.

SIR PHILIP MANSON-BAHR, C.M.G., D.S.O., M.D.: It is very kind of the Chairman to ask me, because I am only a very junior member of this assembly, to speak on this occasion when we have heard such a wonderful demonstration from Sir Leonard, whom I have known for so long and admired so much. We are glad to see that he never gets any older, but that he gets younger as the years roll by. His enthusiasm is equally intensive and is probably as brilliant as it has ever been over his long career.

He said something about segregation and its evils. Many years ago, when I went to Fiji, I sailed to the island of Bequa with my wife. I remember we had a very stormy passage on a government steamer which was called the 'Ranandi'. She was built for the Scottish lochs and not for the Pacific. I thought I was a good sailor and off we started. We had not gone very far before my assistant went below and was violently sick, so I thought I had better go and offer him my consolation and do what I could for him; then I was violently sick too. Then he said, 'Sir, I wish I was a leper'. 'Why would you wish to be a leper, my friend?' 'Then I need not have to come back again on this miserable vessel!'

Having reached Bequa we saw fifty-four unfortunate lepers, mostly Fijians; there were two white men, and the picture of those two men isolated in the middle of the Pacific has remained with me ever since. One of them came crying and said to me, 'Do you think I could touch your wife?' I answered, 'I am sure she would not mind, she has been a nurse, and she knows all about it'. 'Could I put my finger on her arm? I have not seen a white woman for twenty years and I shall never see another one again'.

That was segregation of leprosy as I knew it in those hopeless days. I returned to Fiji after forty years and I went to this island which Dr. Austin has just left, the leprosarium of Fiji, Mokoqai, and there I saw a totally different state of affairs: I saw a prosperous farm, schools, hospital, charming French Roman Catholic sisters in charge, and that wonderful personality Dr. Austin himself. The patients were all happy and engaged in some occupation or other. The children were being taught separately as they were segregated. They were all full of hope because of this new drug. My son had been sent there just a few months before because of several deaths from anaemia; those were the early days of sulphone treatment and, as you know, anaemia was one of the side effects at that time.

Fiji has not given up its policy of segregation, but it is the only place except South Africa, as Sir Leonard said, in which it appears to be successful. That, I think, is due to the psychology of the Fijians who, as you know, are a very friendly, co-operative race, and to the fact that we still have a certain amount of *kudos* in Fiji. The white man,

and especially the Colonial official, is looked upon still as a kind of demi-god, and merely because of the fact that he knows how to play cricket and football properly! We have taught the Fijians to play cricket and football, and one fine day we shall welcome a Fijian cricket team over here.

The treatment has been eminently successful because you have to go a long way nowadays to find any cases of leprosy at all, and an entirely different light is shed on these wonderful Pacific islands.

Somebody many years ago said that a statue ought to be erected to Sir Leonard in Calcutta. I saw that statue; it is a jolly good one, and very like him as he looks now. I should like to see a similar monument to Sir Leonard erected in every leprosarium in the world.

THE CHAIRMAN: Dr. Muir, you remember Sir Leonard mentioned the difficulty that you experienced in the West Indies. Can you tell us something about that?

DR. E. MUIR, C.M.G., C.I.E.: I was in the West Indies from 1940 to 1945 in a little island about half-way between Trinidad and Venezuela, an island with the peculiar name of Chacachacare. We had about four hundred patients on that island; it had been chosen because the people considered that leprosy was a very infectious disease and they wanted to get rid of them and get them as far away as possible.

When I arrived there, just before Christmas, I found that a very large number of the patients had asked for leave. They were almost all of them highly infectious cases and they had asked for leave in order to go back to their homes and have some jollification over Christmas. One of the first things that I had to do was to prevent their going, and I became very unpopular. One can understand how ineffective segregation of that sort is. Patients are sent so far away—about twelve miles away from the mainland—in order to prevent their mixing with others and then they are given leave in order that they may go home at the time when there would be most opportunity for infecting their children by mixing with them.

I believe that since the sulphone treatment has been introduced the disease is very much less in all the West Indies, and that includes British Guiana, and that in course of time the disease should be brought entirely under control.

The other thing I should like to mention is in answer to the question about the disappearance of leprosy from England. Although there are numbers of patients, people who have been infected abroad and have come back to this country, many of them mixing with the population, yet the disease has not spread. There have been many suggestions made, but the most likely one seems to be that possibly the widespread infection with tuberculosis in this country in some way or other affords protection against leprosy. That was suggested by Sir Leonard Rogers some years ago, and I think there is a good deal of confirmation of it in what he told us with regard to the apparent protection which may be afforded by vaccination with BCG. But, of course, that is a matter which is still *sub judice*. We cannot say for certain whether that will be confirmed by further work. If it is found that vaccination with BCG gives protection there will then be a very much more powerful weapon in our hands for preventing infection, especially of young children.

THE CHAIRMAN: I believe one of the troubles Dr. Fraser has in his island of Happy Healing, off Hong Kong, at the moment is the tuberculosis that accompanies leprosy. Perhaps he would care to tell us something about that? My own experience is that the two diseases did run together in the cases that I met with, not only in West Africa but in Malaya and elsewhere.

DR. N. D. FRASER: Might I first say how very much I have appreciated the opportunity of hearing Sir Leonard Rogers' address. With regard to the situation in Hong Kong and the relation of leprosy and tuberculosis, the whole set-up in Hong Kong is somewhat peculiar and it is difficult to discuss any aspects of the problem without

mentioning the setting in which you find the problem. Sir Selwyn knows, of course, that the whole Colony of Hong Kong is thirty miles by thirty miles, and a large part of that area is taken up with mountains and with sea; but within that small area there are three million people to-day—a greater number than the population of New Zealand. With that number crowded into that small space there is inevitably a tremendous degree of over-crowding and of poor living conditions, and the fact that we have amongst our leprosy patients a fair number of patients who suffer, not only from leprosy, but also from tuberculosis, is in the circumstances not surprising.

We have built up during the last two and a half to three years a leprosarium to which we have admitted 350 people. We have in our out-patient clinics in Hong Kong another 350 patients, and there we see quite a number of early cases whose symptoms have appeared in the last one or two years. The children of those patients are receiving BCG vaccination and in some cases we are giving prophylactic treatment; I do not know how far that is approved. On Hai-Ling Chan itself we do have the problem of treating the two diseases: among our 350 patients I should think there are ten or twelve patients who have tuberculosis along with the lepromatous form of leprosy. The patients respond readily to treatment, and both leprosy and tuberculosis—provided the diseases are not already too far advanced when they are first seen—make satisfactory progress.

**DR. J. LOWE:** I remember over thirty years ago that it was the enthusiasm of Sir Leonard Rogers, followed by Dr. Muir, that led me to take up leprosy work. So many of those who are engaged on leprosy work have been encouraged to do so by the example of those who have gone before us, particularly Sir Leonard and Dr. Muir.

May I mention the question of tuberculosis and leprosy, and their relation? Immunological relation is a subject which I have been studying particularly in the last two or three years. There is the idea, it has been known for many decades, that people with severe lepromatous leprosy frequently suffer from tuberculosis and, in fact, the records of leprosy institutions show that tuberculosis of the lungs is one of the commonest causes of death in such institutions. I would point out that that does not disprove the idea of a previous tuberculosis infection, particularly abortive tuberculosis infection, which most of us have, giving us some protection against a subsequent leprosy infection.

**LT.-COL. C. L. PASRICHA, M.B.:** I am not going to say anything about leprosy but wish only to convey to Sir Leonard Rogers our thanks for a masterful and wonderful lecture. I think it is only right that someone from India should say 'thank you' for a very wonderful lecture.

I was at the Institute where the memorial to Sir Leonard Rogers stands. India, and Calcutta particularly, gave him the opportunity of work there and we in India will keep his memory ever green.

**THE LECTURER:** The most important point that has been raised is the question of the dying out of leprosy in England; it is a question that I have been greatly interested in. The conclusion I came to was that there was a great fall of leprosy in the second half of the fourteenth century following the Black Death, the greatest epidemic or bubonic plague known anywhere. At that time, it is said, one fourth of the inhabitants of Europe, and as many as ninety per cent of the people in some of the monasteries in this country, died of plague. Now I find in old records, especially in Iceland, that in any epidemic, even of measles or small-pox, the leprosy cases fell. The poor people with leprosy were the first people to die when such an epidemic occurred. Then they multiplied again later.

I think the first cause of its dying out in this country was the Black Death; but equally important later was the improvement of sanitation. That is well shown

by what happened in the northern central states of the United States, Minnesota and so on where an enormous number of Scandinavians went out to live. Hansen discovered the leprosy bacillus; he went out to investigate what happened, and he could not trace a single infection for something like 160 cases of leprosy. But there was this difference: in Norway, the poor people—fishermen chiefly—lived on the coast, and it was a custom, because they had very big families, for all the men to sleep in one huge bed in one room and all the women in another room. You could not get better contact for spreading leprosy than that. When they went to America and were well off they each had separate rooms, and in a favourable climate it did not spread.

The improved hygienic conditions are a very important part of the dying out of leprosy in this country after the fourteenth century. I think also that there may be other factors and the occurrence of tuberculosis is a very important one. Professor Chaussinond of Paris, has written a very interesting book on leprosy recently in which he has published data from a number of countries, showing that leprosy did decrease at the time that tuberculosis increased. As a matter of fact, as far back as 1927, I wrote a paper on the many resemblances between tuberculosis and leprosy, in their effect on children and so on. I looked up the records and I found that in West Africa and Nigeria, for instance, the number of people there who gave a positive reaction to tuberculosis, showing that they had had some infection with tuberculosis, was only 9 per cent as against 90 to 99 per cent in Western Europe and this country. That seems rather to support that view. It is important because it does furnish, as Dr. Lowe pointed out, some authority for using this new tuberculin vaccine, BCG.

We had one interesting experience in India in the Purulia settlement of the C.M.S., where cases were being treated. There a number of cases were improving rapidly. Suddenly one day they refused to go on with the treatment and it was a long time before doctors could find out why, but eventually one of the patients blurted out: 'Well, Sahib, you're curing us. You'll turn us out when we're cured. Our people won't take us; thank you very much, we don't want to be cured'. That was easily settled, there was plenty of land about and as soon as they were cured they were given some. To-day they have a village of cured people who have been there now for two or three decades. That is a good example of the value of the treatment.

Speakers have referred to my bust—it is not a statue. It is a very good one, and I am very proud of it. There is rather an amusing story about it. Sir Walter Fletcher went out to India to advise the Government on medical research work. After he came home we had a committee meeting at the Colonial Office discussing medical research with the Secretary of State in the chair. Sir Walter, in a pause in the conversation, said, 'I saw a bust of you in the Calcutta School of Tropical Medicine. Why did they make you look so fierce?' 'They had to', I answered, 'I'd been fighting the Government for ten years to get my scheme through!'

In conclusion, I wish to thank Sir Selwyn for so appropriately presiding at this meeting and for the generous remarks on my career; to thank the speakers for their valuable contributions to the discussion; and lastly, to express my gratification at the large attendance of old friends who have graced the proceedings.

**THE CHAIRMAN:** It now gives me very great pleasure to ask you to join with me in according a warm vote of thanks to Sir Leonard Rogers for his excellent lecture and for his answers to the questions.

*The vote of thanks was carried with acclamation, and the meeting then ended.*

## GENERAL NOTES

## LEVERHULME RESEARCH AWARDS

Application is again invited for Fellowships and Grants in aid of research. These awards are intended for senior workers of established position and are limited to British-born subjects normally resident in the United Kingdom. No subject of enquiry is excluded from consideration but preference is given to subjects in which existing provision for research is inadequate. The duration of the awards does not normally extend over more than two years or less than three months and the amount depends on the nature of the research and the circumstances of the applicant.

Forms of application may be obtained from the Secretary, Miss M. Branney, Leverhulme Research Awards, St. Bridget's House, Bridewell Place, London, E.C.4. Applications must be received on or before 31st December, 1954.

## ELECTRICAL SIGN DESIGN COMPETITION

The first Electric Sign Design Competition to be held in this country is being sponsored by the Electrical Sign Manufacturers' Association. The main purpose of the competition is to foster an improvement in the technique of designing electric signs; it is also hoped that it will help to increase awareness of their uses for identification and advertising. The competition is open to all and at least one of the prizes will be awarded to an amateur designer.

Full particulars of the competition can be obtained from the Electrical Sign Manufacturers' Association, Kingsway House, 103 Kingsway, London, W.C.2.

## OBITUARY

## SIR WALLACE AKERS

We record with regret the death, at the age of 66, of Sir Wallace Alan Akers, C.B.E., F.R.S.

He left Christ Church, Oxford, to join Brunner Mond & Company, and he remained with them until 1924. Then after four years with the Borneo Company he joined Imperial Chemical Industries, of which he eventually became research director. During the Second World War he was in charge of the special division of the D.S.I.R., to direct work on the construction of atomic bombs. He was knighted in 1946.

Akers received honorary degrees from Durham and Oxford Universities and was a trustee of the National Gallery. He was elected a Life Fellow of the Society in 1946, and took the chair at the first Fernhurst Lecture, in 1950.

## CORRESPONDENCE

## RICHARD TREVITHICK

*From JOHN ROWLAND, 165, MACKIE AVENUE, BRIGHTON 6, SUSSEX.*

I am writing to ask if any Fellows may possess (or may know the whereabouts) of any letters or other documents concerning Richard Trevithick, the Cornish engineer (1771-1835). I am hoping to produce a new 'popular' life of Trevithick and, while there is, perhaps, not likely to be much documentary evidence available, some items may have escaped previous writers. I should, perhaps, add that I have Dickinson and Titley's book on Trevithick, published in 1933, and in consequence will not need information regarding any books or papers which are listed by those authors.

## SHORT NOTES ON BOOKS

**INTRODUCTION TO STILL-LIFE.** By Allan Gwynne-Jones. Staples Press, 1954. 35s

Sixty-eight pages of half-tone plates of still-lifes and details from them are accompanied by notes on the artist, and the technique and historical situation of the painting. These are introduced by an essay on the origins of this branch of art.

**SOME FAMOUS ENGLISH COUNTRY HOMES FROM THE TIME OF HENRY VIII TO THE REGENCY.** By G. W. Whiteman. *The Antique Collector*, 1951. 42s

This book contains photographs and descriptions of the interiors and exteriors of sixteen English country homes. Among them are Compton Wynyates, Sutton Place, Corsham Court, Ham House, Castle Ashby, Drayton House, Wimpole Hall, Stratfield Saye and Longford Castle.

**RICE.** By D. H. Grist. Longmans Green, 1953. 35s

Rice in all its aspects is the subject of this well-illustrated volume. Its botanical description, its diseases and pests, and their prevention, the methods of cultivation and manuring in the various parts of the world, the breeding of varieties, harvesting, the nutritional value of the grain and the by-products of the plant are all treated, and various methods for improving yield are suggested.

**LIFE AND THE UNIVERSE.** By the Earl Nelson. Staples Press, 1953. 15s

This is an account of the Universe, the origins of life, and various natural phenomena, including earthquakes, hurricanes and flying saucers. In each case a scientific theory behind the phenomenon is described in popular language.

**PAINTERS' IDIOM: A TECHNICAL APPROACH TO PAINTING.** By R. W. Alston. Staples Press, 1954. 25s

In this work the media of water-colour and oil painting are discussed from a practical point of view. After a general introduction the palettes of various artists typical of their period are discussed in detail and an historical survey of the changes in the contents of palette of the painter in oils is thereby attained.

**ANIMALS IN STAFFORDSHIRE POTTERY.** By Bernard Rackham. Penguin Books, 1953. 5s

Twelve coloured plates of Staffordshire pottery animals are here preceded by about ten thousand words of text illustrated with line drawings. The reasons which influenced the choice of animals and the chief makers are discussed.

**SCIENCE AND THE SOCIAL ORDER.** By Bernard Barber. George Allen & Unwin, 1953. 20s

Science in relation to the social environment is the subject of this book. After an historical survey of the types of society in which science has developed, the relations of the scientist with various modern American institutions are discussed. The social consequences of science and the nature of the scientist's social responsibility are also considered.

**MATHEMATICS IN WESTERN CULTURE.** By Morris Kline. George Allen & Unwin, 1954. 30s

This is an account of the influence mathematics has had on various branches of European culture. Among the subjects discussed are the application of mathematics to pictorial perspective, the statistical approach to knowledge and the theory of relativity.

## LIBRARY ADDITIONS

## FINE ARTS

LE MAY, REGINALD. The culture of South-East Asia: the heritage of India . . .  
*Allen & Unwin, 1954.*

NEWTON, HERBERT HERMAN. An artist's experience: autobiographical notebook.  
 2nd ed. *John Lane, 1953.* (Presented by the author.)

NOBILI, RICCARDO. The gentle art of faking: the history of the methods of producing imitations and spurious works of art from the earliest times up to the present day . . . *Seeley Service & co., ltd., 1922.*

SAVAGE, GEORGE. The art and antique restorers' handbook: a dictionary of materials and processes used in the restoration and preservation of all kinds of works of art. *Rockliff, 1954.*

## HISTORY AND TOPOGRAPHY

RADCLIFFE, Sir CLIFFORD. Middlesex. New ed. *Evans brothers, 1954.*

WAKE, JOAN. The Brudenells of Deene. *Cassell, 1953.*

## LITERATURE AND AUTHORSHIP

BURY, ADRIAN. An Elizabethan coronal: twenty-six sonnets. 2nd ed. *Falcon press, 1953.* (Presented by the author.)

LISTER, RAYMOND, compiler. Books at bedtime: being a list of bedside literature suitable for ladies and gentlemen of all tastes, even the most fastidious . . . *Linton, Cambs., Raymond Lister, 1953.*

## FROM THE JOURNAL OF 1854

VOLUME II. 10th November, 1854

## THE VENTILATION OF EMIGRANT SHIPS

*From a letter by M. S. Bentham.*

Having heard, about three years ago, of the severe sufferings of emigrants to Australia during warm close weather, for want of sufficient ventilation, I suggested to the Reverend Mr. Quckett, the introduction of ventilating pumps on board of emigrant ships; but he considered the means adopted for this purpose in vessels fitted under his direction were quite sufficient. They may be so in this climate, and in breezy weather; but from what has transpired it does not appear to be the case in calm or in hot weather. It has lately been proposed to place a six-horse steam-engine on board ship for the sole purpose of working ventilating pumps; an extravagant employment, it would seem, of steam-power in emigrant ships, since passengers weary for want of occupation, and every one in turns, might find it in working the pumps. It might indeed be necessary at first to cause passengers to enter into suitable agreements for taking spells at this employment, but this occasional labour would doubtless contribute much to the good conduct of emigrants, seeing that the forced idleness to which emigrants are subjected during the passage to Australia is a chief cause of insubordination to needful regulations. Much the same may be affirmed in regard to vessels of war, for it is not every day the crew are in action with an enemy. Complaints have been made that the crews or passengers of vessels, frequently obstruct the entrance of fresh air by tying up wind-sails, or by stopping up air-pipes; a practice totally subversive of due ventilation, but which is caused by unhealthy and disagreeable currents of cold air which, according to customary arrangements, delivers fresh air in large volumes by a few openings only.

*Some Activities of Other Societies and Organizations*

## MEETINGS

**MON. 15 NOV.** Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. *Has Nuclear Fission a Future as a Source of Industrial Power?* (DISCUSSION)  
Imperial Institute, South Kensington, S.W.7. 5.45 p.m. J. D. Bradley : *Exploring the Islands : Island Journey—Sydney to the Solomons.*

**TUES. 16 NOV.** Civil Engineers, Institution of, Great George Street, S.W.1. 5.30 p.m. Charles Jaeger : *Present Trends in the Design of Pressure Tunnels and Shafts for Underground Hydro-Electric Power Stations.*  
Industrial Transport Association, at the Royal Society of Arts, W.C.2. 6.30 p.m. T. D. Corpé : *The Road Traffic Acts in Relation to Commercial Vehicle Operation.*  
International Affairs, Royal Institute of, 10 St. James's Square, S.W.1. 1.30 p.m. Rt. Hon. C. R. Attlee : *My Impressions of China To-day.*

**WED. 17 NOV.** British Foundrymen, Institute of, at the Waldorf Hotel, W.C.1. 7.30 p.m. G. Rogers : *Some Foundry Problems.*  
British Kinematograph Society, at G.B. Theatre, Wardour Street, W.I. 7.30 p.m. R. W. G. Hunt : *Factors Affecting the Perception of Colour.*

Chadwick Trust, at the University College, Gower Street, W.C.1. 5.30 p.m. Peter C. G. Isaac : *Environmental Control and Occupational Health.*  
Eugenics Society, at the Royal Society, Burlington House, Piccadilly, W.I. 5.30 p.m. Christopher Onsted : *Genetic and Social Aspects of the Epilepsies of Childhood.*

Locomotive Engineers, Institution of, at the Institution of Mechanical Engineers, 1 Birdcage Walk, S.W.1. 5.30 p.m. K. H. Fett : *A Modern Hydraulic Drive for Locomotives.*  
Meteorological Society, Royal, 49 Cromwell Road, S.W.7. 4.45 p.m. *Water Supply* (DISCUSSION).  
Microscopical Society, Royal, Tavistock House South, Tavistock Square, W.C.1. 5.30 p.m. H. Heywood : *The Microscopes of John Marshall.*

**Victoria & Albert Museum, South Kensington, S.W.7.** 6.15 p.m. Mrs. Geoffrey Webb : *Eighteenth Century Sculpture in London.*

**THURS. 18 NOV.** Chemical Society, at the Imperial College of Science and Technology, South Kensington, S.W.7. 7.30 p.m. Prof. M. J. S. Dewar : *Molecular Rearrangements.*  
Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. C. J. Beavis : *The Use of Electricity in the Production of Calcium Carbide.*  
International Affairs, Royal Institute of, 10 St. James's Square, S.W.1. 8 p.m. Hermann J. Abs : *Observations on Political and Economic Problems.*  
Petroleum, Institute of, at 26 Portland Place, W.I. 6 p.m. J. L. Hunt : *Agricultural Pesticides.*  
Road Transport Engineers, Institute of, at the Royal Society of Arts, W.C.2. 6.30 p.m. R. H. Patman : *An Approach to the Organisation and Operation of a Large Composite Fleet.*

**FRI. 19 NOV.** British Sound Recording Association, at the Royal Society of Arts, W.C.2. 7 p.m. G. Elliott : *Balance and Control in Recording Studios.*  
Mechanical Engineers, Institution of, 1 Birdcage Walk, S.W.1. 5.30 p.m. G. W. H. Gardner : *Guided Missiles.*

**SAT. 20 NOV.** Horniman Museum, London Road, Forest Hill, S.E.23. 3.30 p.m. Sir Harry Luke : *Easter Island.*

**MON. 22 NOV.** Imperial Institute, South Kensington, S.W.7. 5.45 p.m. J. Armfield Bindon : *Exploring the Islands : Zanzibar—Isle of Claves.*

**TUES. 23 NOV.** Civil Engineers, Institution of, Great George Street, S.W.1. 5.30 p.m. (1) V. F. Beer : *Standardization of Type and Design Applied to Steam Locomotive Shed Roofs.* (2) R. L. McIlroy and D. W. Peacock : *Smoke Extraction from Engine Sheds—an Account of some Full-Scale Tests.*  
Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. (1) Prof. H. E. M. Barlow : *The Application of the Hall Effect in a Semi-Conductor for Measurement of Power in an Electromagnetic Field.* (2) A. H. M. Arnold : *Audio Frequency Power Measurements by Dynamometer Wattmeters.*

International Affairs, Royal Institute of, 10 St. James's Square, S.W.1. 1.30 p.m. Prof. Guido Calogero : *Some Comments on the present Italian Situation.*

**WED. 24 NOV.** Archaeological Institute of Great Britain and Ireland, Royal, at the Society of Antiquaries of London, Burlington House, Piccadilly, W.I. 5 p.m. H. M. Colvin : *Intaglio Jones and Wilton House.*  
British Kinematograph Society, at G.B. Theatre, Wardour Street, W.I. 7.15 p.m. I. J. P. James : *Factors Affecting Quality in Colour Television.*

**Victoria & Albert Museum, South Kensington, S.W.7.** 6.15 p.m. G. Zarnecki : *English Romanesque Sculpture.*

**THURS. 25 NOV.** Engineers, Society of, 17 Victoria Street, S.W.1. 6 p.m. W. O. O. Aiyedun : *Fluorescent Lighting and the Home.*  
Fuel, Institute of, at the Institution of Civil Engineers, Great George Street, S.W.1. 5.30 p.m. W. Cronin and J. F. Lang : *Peat-fired Power Stations.*

Refrigeration, Institute of, at the Institution of Mechanical Engineers, 1 Birdcage Walk, S.W.1. 5.30 p.m. Miss M. V. Griffiths : *The Use of Heat Pumps of Small Capacity for Various Purposes in Great Britain.*

**FRI. 26 NOV.** Mechanical Engineers, Institution of, 1 Birdcage Walk, S.W.1. 5.30 p.m. E. Lightfoot and B. L. Clarkson : *Dynamic Stresses in Electric Overhead Travelling Cranes due to the Hoisting and Lowering of Loads.*

**SAT. 27 NOV.** Horniman Museum, London Road, Forest Hill, S.E.23. 3.30 p.m. Sir Richard Winsted : *Malay Folk Song.*

## OTHER ACTIVITIES

**MON. 15 NOV.** Geographical Society, Royal, South Kensington, S.W.7. 5.30 p.m. Film : *Powered Flight*

**SAT. 27 NOV.** Middlesex County Teachers Association (N.U.T.), at Institute of Education, Malet Street, W.C.1. Conference : *The Freedom of the Teacher.*

**NOW UNTIL 1 DEC.** The Building Centre, 26 Store Street, W.C.1. Exhibition : *Fifty Years of Building Education.*

**NOW UNTIL 1 DEC.** Sanitary Institute, Royal, in the Museum of Hygiene, 90 Buckingham Palace Road, S.W.1. Exhibition : *Single Stack Drainage for Multi-story Flats.*

**NOW UNTIL 31 DEC.** Imperial Institute, South Kensington, S.W.7. Exhibition : *Sir Alfred Bassom's Collection of the Arts and Crafts of the British Columbia Indians.*

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